

**Amendments to the claims:**

This listing of claims will replace all prior versions, and listings of claims in the application.

**Listing of Claims:**

**Claim 1. (Currently Amended)** A stent comprising (a) at least one of (i) a material consisting essentially of at least one non-metallic shape memory polymer (SMP) and/or (ii) a scaffold comprising a non-shape memory material that supports at least one material consisting essentially of at least one non-metallic SMP, and (b) optionally at least one non-shape memory ingredient;

wherein said at least one SMP has up to two stimuli-triggered shapes in memory; and

wherein the stent contains no shape memory materials other than the at least one non-metallic SMP.

~~A stent, comprising an SMP material for use in the non-vascular or vascular field.~~

**Claim 2. (Currently Amended)** The stent as claimed in claim 1, wherein the stent has one stimuli-triggered shape in memory ~~comprises a basic structure of a material coated with an SMP material, preferably an SMP material with one of the following: one shape in the memory and two shapes in the memory.~~

**Claim 3. (Previously Presented)** The stent as claimed in claim 1, further comprising additional additives selected from among wherein the at least one non-shape memory ingredient, wherein the non-shape memory material is at least one of an x-ray contrast substances, an inorganic nanoparticle material, an anti-inflammatory active substance, an analgetic substance, an antibiotic active substance, an active substance against viruses and fungi, an antithrombic active substance, an cytostatic active substance, an immunosuppressive active substance and an active substance for lowering restenosis.

~~and medically effective compounds.~~

**Claim 4. (Currently Amended)** The stent as claimed in claim 1, wherein the at least one non-metallic SMP material is selected from among the following: is at least one of an SMP-containing polymer networks, a thermoplastic SMP materials, an SMP-containing composite polymer materials and, a an SMP-containing polymer blends and combinations thereof.

**Claim 5-15. (Canceled).**

**Please add the following new claims:**

**Claim 16. (New)** The stent as claimed in claim 1, wherein the stimuli is at least one of a thermal change, a light wavelength change and a pH change.

**Claim 17. (New)** The stent as claimed in claim 1, wherein the SMP-containing material is at least one of biocompatible and haemocompatible.

**Claim 18. (New)** The stent as claimed in claim 1, wherein the SMP has an e-module value of approximately 0.5 to approximately 50 Mpa.

**Claim 19. (New)** The stent as claimed in claim 1, wherein the SMP has an elongation of break of approximately 100% to approximately 1200%.

**Claim 20. (New)** The stent as claimed in claim 1, wherein the SMP has a reset fixation value of more than approximately 90%.

**Claim 21. (New)** The stent as claimed in claim 1, wherein the SMP has a reset fixation value of more than approximately 92%.

**Claim 22. (New)** The stent as claimed in claim 1, wherein the SMP has a reset fixation value of more than approximately 95%.

**Claim 23. (New)** The stent as claimed in claim 1, wherein the SMP has a reset fixation value of more than approximately 98%.

**Claim 24. (New)** The stent as claimed in claim 1, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 90%.

**Claim 25. (New)** The stent as claimed in claim 1, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 92%.

**Claim 26. (New)** The stent as claimed in claim 1, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 95%.

**Claim 27. (New)** The stent as claimed in claim 1, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 98%.

**Claim 28. (New)** The stent as claimed in claim 1, wherein the SMP comprises at least one of caprolacton units, pentadecalacton units, ethyleneglycol units, propyleneglycol units, lactic acid units, glycol acid units and combinations thereof.

**Claim 29. (New)** The stent as claimed in claim 1, wherein the SMP comprises cross-linked caprolactonmacromonomers.

**Claim 30. (New)** The stent as claimed in claim 1, wherein the stent is prepared by at least one of an extrusion method, a coating method, a casting method, a spinning and weaving method and combinations thereof.

**Claim 31. (New)** A stenting system comprising the stent of claim 1 and at least one of a temperature-controlled balloon catheter and a balloon catheter with an optical fibre.

**Claim 32. (New)** A method for the minimally invasive implantation of the stent of claim 1 into a patient in need thereof comprising:

- (i) placing the stent of claim 1 onto at least one of a temperature-controlled balloon catheter and a balloon catheter with an optical fibre;
- (ii) inserting the stent into a desired position;
- (iii) expanding the stent by application of at least one first stimuli; and
- (iv) fixing the expanded stent by exposure to at least one second stimuli.

**Claim 33. (New)** The method claimed in claim 32, wherein the at least one first stimuli is at least one of a thermal change, a light wavelength change and a pH change.

**Claim 34. (New)** The method claimed in claim 32, wherein the at least one second stimuli is at least one of a thermal change, a light wavelength change and a pH change.

**Claim 35. (New)** A method for the minimally invasive removal of the stent of claim 1 from a patient comprising:

- (i) inserting a balloon catheter into an implantation location;
- (ii) applying at least one stimuli to the stent in order to activate its shape memory; and
- (iii) removing the stent and balloon catheter.

**Claim 36. (New)** The method claimed in claim 35, wherein the at least one stimuli is at least one of a thermal change, a light wavelength change and a pH change.

**Claim 37. (New)** A stent consisting essentially of at least one non-metallic shape memory polymer (SMP) and optionally at least one non-shape memory ingredient;  
wherein said at least one SMP has up to two stimuli-triggered shapes in memory.

**Claim 39. (New)** The stent as claimed in claim 37, wherein the at least one non-shape memory ingredient is at least one of an x-ray contrast substances, an inorganic nanoparticle material, an anti-inflammatory active substance, an analgetic substance, an antibiotic active substance, an active substance against viruses and fungi, an antithrombic active substance, an cytostatic active substance, an immunosuppressive active substance and an active substance for lowering restenosis.

**Claim 39. (New)** The stent as claimed in claim 37, wherein the at least one non-metallic SMP is at least one of an SMP-containing polymer network, a thermoplastic SMP materials, an SMP-containing composite polymer material, an SMP-containing polymer blend and combinations thereof.

**Claim 40. (New)** The stent as claimed in claim 37, wherein the SMP comprises at least one of caprolacton units, pentadecalacton units, ethyleneglycol units, propyleneglycol units, lactic acid units, glycol acid units and combinations thereof.

**Claim 41. (New)** The stent as claimed in claim 37, wherein the stimuli is at least one of a thermal change, a light wavelength change and a pH change.